

# DRAFT

2007

**Ten-Year State Highway Operation and Protection Plan  
(State Fiscal Year's 2008/09 through 2017/18)**



**Prepared by: The California Department of Transportation**

**Required by: Streets & Highway Code Section 164.6**



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## **EXECUTIVE SUMMARY**

The California Department of Transportation (Department) is responsible for maintaining and operating the 50,000 lane mile State Highway System (SHS), the backbone of California's transportation system. The Department monitors the condition and operational effectiveness of the SHS through periodic inspection, traffic studies and system analysis. The Department uses the information obtained through these activities to prepare the Ten-Year State Highway Operation and Protection Plan (Plan) as required by Streets and Highways Code Section 164.6 (refer to Appendix A). The Plan provides input for the funding distribution in the Fund Estimate (FE) adopted by the California Transportation Commission (CTC) in August of each odd-numbered year. The FE, with its fiscal constraints, establishes the framework for how much SHOPP work can be accomplished in the subsequent four years.

Streets and Highways Code Section 164.6 requires the Plan to include identified needs for the ten-year period State Fiscal Year (FY) 2008/09 through FY 2017/18 based on quantifiable accomplishments. The Plan is to include a cost estimate for at least the first five years. Due to immediate and intermediate funding constraints, the Department recognizes that the Plan must also contain a fiscally constrained recommendation for SHOPP funding for the FE period.

**The total ten-year needs defined in the 2007 Ten-Year State Highway Operation and Protection Plan (2007 Plan) for the rehabilitation and operation of SHS is \$42 billion for the period from State FY 2008/09 through FY 2017/18. This amount represents the present value of construction and right-of-way acquisition costs. Adding project development costs at approximately 32 percent increases the total cost of the need to \$55 billion.**

In contrast, the 2005 Ten-Year State Highway Operation and Protection Plan (2005 Plan) identified system needs of \$29.7 billion for the ten-year period State FY 2006/07 through FY 2015/16, which averages \$3 billion per year. The State Highway Account (SHA), which is the sole funding source for the SHOPP, funded the 2006 SHOPP at \$2 billion per year, two-thirds of the identified need. Under current revenue projections, funding for the SHOPP in the 2008 FE is not expected to change significantly from the level in the approved 2006 FE.

The increase in ten-year SHOPP needs in the 2007 Plan as compared to the 2005 Plan is the result of the following conditions:

- The transportation infrastructure is aging and in need of rehabilitation and reconstruction;
- The continued increase in vehicle travel and goods movement contribute to an increased rate of pavement and bridge deterioration, new accident concentration locations, and increasing hours of traffic congestion;
- Continued under funding of preservation and rehabilitation delays needed projects and ultimately increases the cost when projects are undertaken;
- Significantly increased price of construction during the past two years leading to loss of buying power;
- Increased legal, statutory and regulatory mandates that must be addressed by the limited funding available.



The 2006 FE identified \$2.5 billion annually in funding for SHOPP Capital Outlay and Capital Outlay Support (COS). Full funding of the \$5.5 billion annual need defined in the 2007 Plan requires an increase in funding of approximately \$3 billion annually. This level of increased activity could stress the existing construction industry that may lead to increased escalation of construction costs. Full funding would also require significantly increased resources in the Department's COS budget.

The Department is initiating several measures to mitigate the effects of limited resources and other factors related to full funding of the SHOPP. At the request of legislative staff, the Department is developing a pavement initiative to maximize the outcomes of limited funding for pavement preservation and rehabilitation. The Department is aggressively identifying means to reduce the costs of legislative and regulatory mandates. The Department continuously looks to more efficient ways to delivery projects thereby reducing the cost of project development workload. Finally, the Department has opportunities to strategically invest additional resources derived from voter approval of Proposition 1B, Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, and from Grant Anticipation Revenue Vehicles or "GARVEE" bonds.

## **Section 1 - Overview**

### **Background and Purpose**

The Department develops and manages the SHOPP as authorized in Government Code Section 14526.5, Streets and Highways Code Section 164.6 (refer to Appendix A), and the Department's Policy for Management of the SHOPP. The purpose of the SHOPP is to maintain and preserve the investment in the California SHS and its supporting infrastructure. Capital improvements programmed in the SHOPP are limited to maintenance, safety and rehabilitation of the transportation infrastructure projects that do not expand the system capacity.

The California SHS, an asset worth in excess of \$300 billion, includes over 50,000 lane-miles of pavement, 12,500 bridges, 205,000 culverts and drainage facilities, 87 roadside rests and 27,200 acres of roadside landscaping. Also included in the transportation infrastructure are the additional support facilities including maintenance stations, equipment shops and transportation laboratories. Much of this system was built in the 1950s, 1960s, and early 1970s to serve the growing population and economy of the state. Many of the transportation infrastructure assets are now reaching an age where deterioration occurs at a faster rate.

### **The California State Highway System**



- **50,000+ Lane Miles**
- **12,500 Bridges**
- **27,200 Acres of Landscape**
- **205,000 Culverts**
- **87 Safety Roadside Rests**

**Figure 1 – The California State Highway System**



## **Structure and Goals of the SHOPP**

The SHOPP has eight categories: (1) Emergency Response, (2) Collision Reduction, (3) Legal and Regulatory Mandates, (4) Bridge Preservation, (5) Roadway Preservation, (6) Mobility Improvement, (7) Roadside Improvement and, (8) Facility Improvement.

These eight categories compose two major groupings, those that relate to the condition of the transportation system (Roadway Preservation, Bridge Preservation, Roadside Improvement and Facility Improvement) and those that relate to its operational performance (Emergency Response, Collision Reduction, Mobility Improvement, and Legal and Regulatory Mandates).

The following is a general description of each category. A detailed description of each element is included in Appendix B.

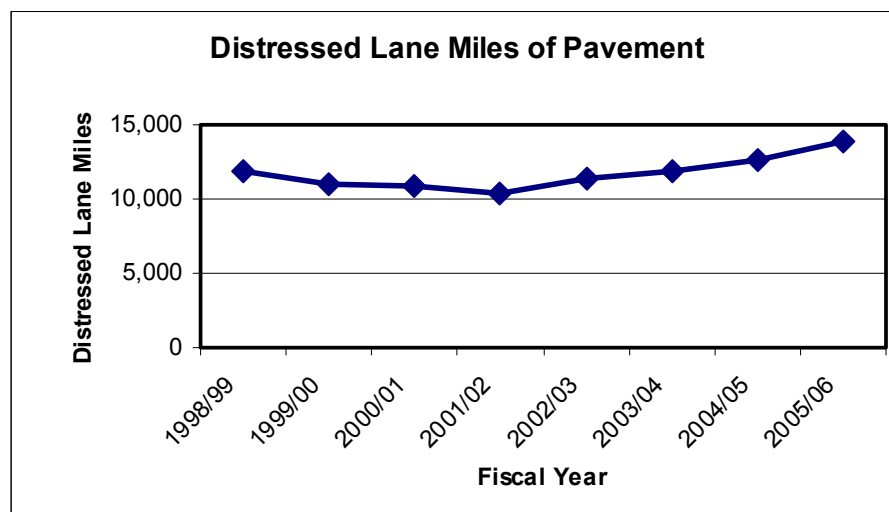
- **Emergency Response:** The goal of the emergency response category is to respond to earthquakes, floods, fires, and other emergencies to restore the roadway to full service within 180 days after major damage and full restoration to pre-disaster conditions within three-years. Emergency response projects resulting from a federally-declared disaster are eligible for federal reimbursement.
- **Collision Reduction:** The goal of the collision reduction category is to reduce the number of fatal and injury collisions.
- **Legal and Regulatory Mandates:** The goal of the legal and regulatory mandates category is to comply with state and federal laws and regulations such as the Clean Water Act, the Porter Colonge Act and evolving stormwater requirements, Americans with Disabilities Act (ADA), and hazardous waste remediation.
- **Bridge Preservation:** The goal of the bridge preservation category is to prevent route closures due to bridge failures and to provide for the periodic rehabilitation of the 12,500 bridges on the SHS.
- **Roadway Preservation:** The goal of the roadway preservation category is to keep the distressed roadway lane miles at a steady managed state. The historic goal of the Department has been to reduce the number of distressed lane-miles of pavement to 5,500, or approximately ten percent of the total system. Due to funding constraints, the Department is reevaluating this goal.
- **Mobility Improvement:** The goal of the mobility improvement category is to reduce congestion and restore productivity of the SHS. Mobility improvements include operational improvements, transportation management systems, weigh stations and weigh-in-motion facilities. As stated in Section 13 of the adopted 2006 State Transportation Improvement Program (STIP) Guidelines, state highway operational improvements that do not expand the design capacity of the system and are intended to address spot congestion are eligible for SHOPP. Regions may nominate these types of

projects in their Regional Transportation Improvement Program (RTIP) if timely implementation through the SHOPP is not possible.

- **Roadside Improvement:** The goal of the roadside improvement category is to reduce the long-term maintenance costs of roadside infrastructure, improve worker and traveler safety, reduce deficient landscaping, and comply with ADA and California Occupational Safety and Health Administration (Cal-OSHA) mandates at rest areas and vista points.
- **Facility Improvement:** The goal of the facility improvement category is to address worker safety, ADA and Cal-OSHA requirements, and to improve operational efficiency. The facility improvement category includes equipment facilities, maintenance facilities, office buildings, and materials laboratories.

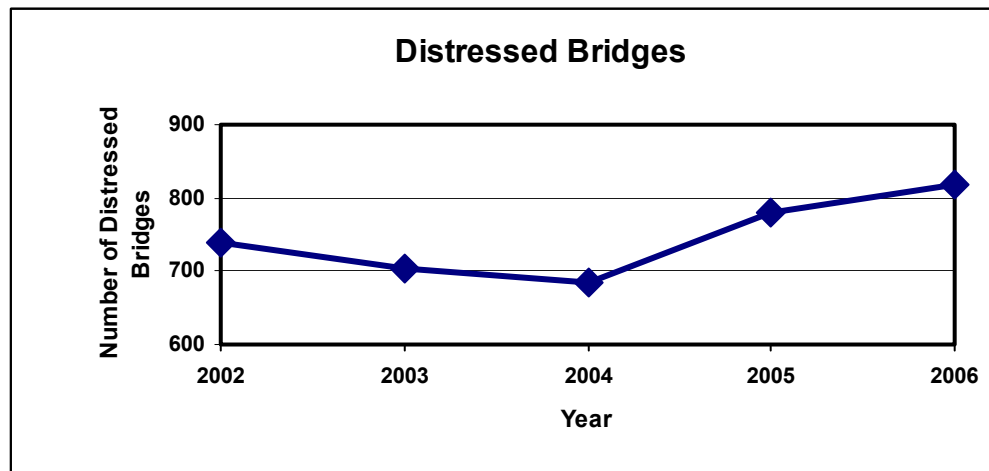
### **System Condition**

The number of distressed lane-miles (those with poor structural condition or with poor ride quality) is an important indicator of the SHS pavement condition. Currently, 13,845 lane miles are distressed. This is 28 percent of the total lane miles in the SHS. The trend over the past four years is an increase in pavement distress.



**Figure 2 – Distressed Lane Miles of Pavement**

The SHS contains over 12,500 bridges. Currently over 800 of these 12,500 bridges are in a distressed condition and in need of rehabilitation. The trend over the last five years is an overall increase in the number of distressed bridges as illustrated in the figure below.

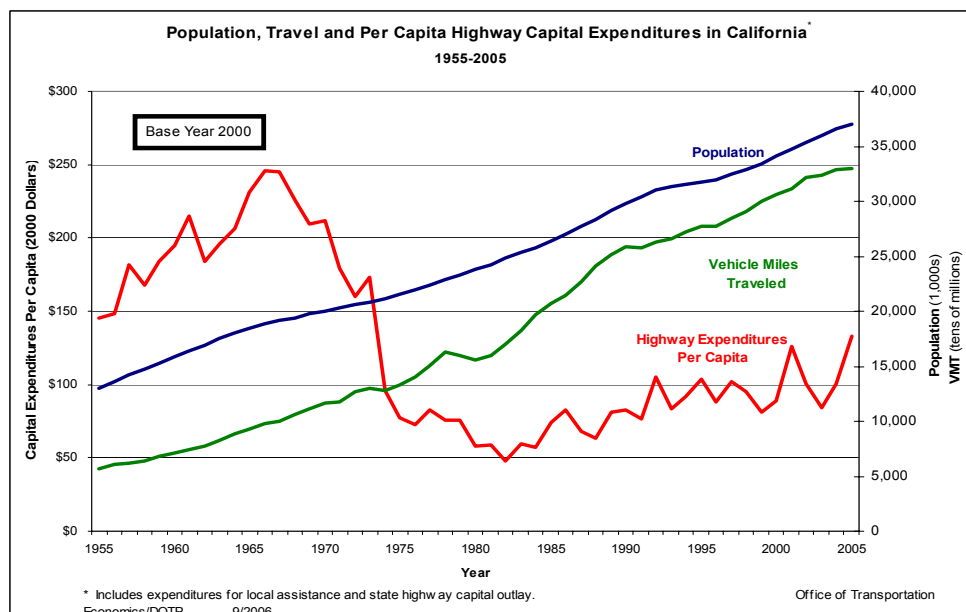


**Figure 3 – Distressed Bridges**

Similarly, approximately 60 percent of the roadside inventory has deteriorated to a state that is beyond the ability of maintenance forces to correct. The number of distressed acres of landscaping has increased from 12,000 to 16,000 in the past five years.

### **Operational Demands**

The demands placed upon the transportation infrastructure continue to increase at a steady pace. In the decade between 1995 and 2005, annual Vehicle Miles Traveled (VMT) increased 20 percent. The increasing VMT combined with the age of the system is causing a faster rate of pavement and bridge deterioration, new accident concentration locations, and increasing hours of traffic congestion. Shown below is a chart depicting the increase in annual VMT as compared to the investment in the SHS.



**Figure 4 – Population, Travel and Per Capita Highway Capital Expenditures in California**

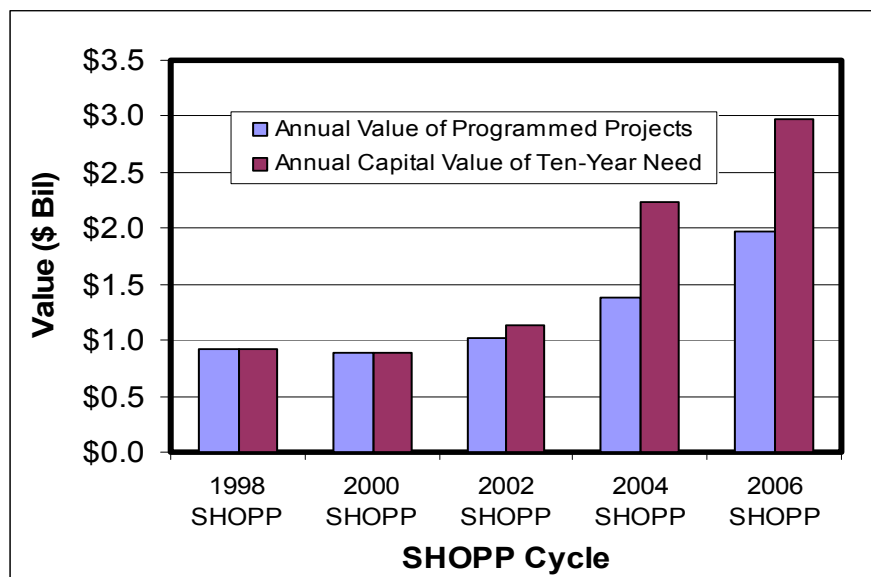


Increased Goods Movement is also impacting SHS. The Federal Highway Administration, Office of Freight Management projects the volume of freight moved on California highways in 2020 will increase by 80 percent over 1998 volumes from 1,108 million tons in 1998 to 1,988 million tons in 2020 (November 2002, Freight Analysis Framework).

### **Financial Considerations**

Needs are also increasing to comply with new laws and regulations related to storm water, ADA and hazardous waste remediation that were not in existence when the system was built. Compliance with new and evolving mandates requires an ever-increasing share of available SHOPP funding.

The figure below illustrates a historical view of the annual value of needs in prior Plan versus the annual value of programmed projects in past programming documents. Notice that the 2005 SHOPP ten-year plan identified needed preservation and rehabilitation costs at \$2.97 billion per year (\$29.72 billion over the ten-year period). Funding in the adopted 2006 SHOPP averages \$2 billion per year for the four-year period from state FYs 2006/07 through FY 2009/10, which is two-thirds of the identified need. Under current revenue projections, funding for the SHOPP is not expected to change significantly in the 2008 FE.

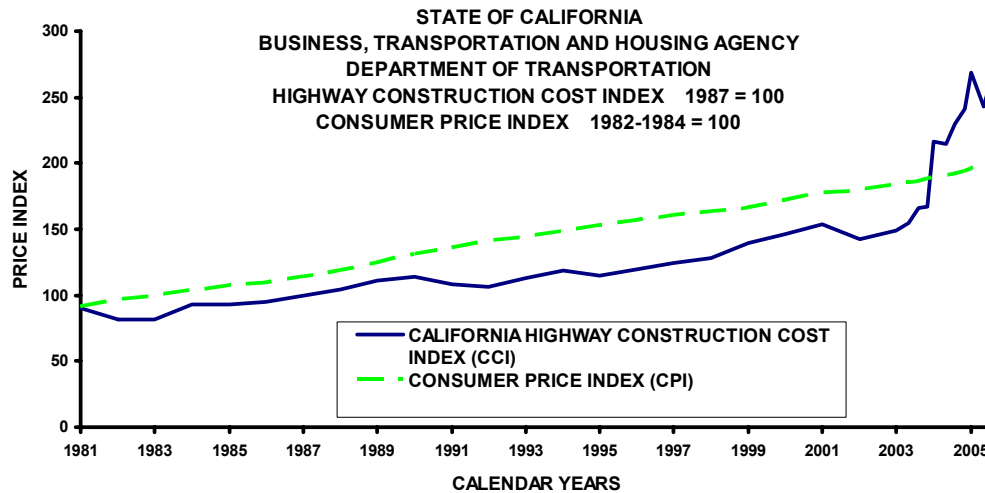


**Figure 5 – Comparison of Needs versus Programmed SHOPP**

Deferring necessary rehabilitation and restoration work leads to lower operational performance, higher operating costs and ultimately higher overall long-term repair costs when needed repairs are ultimately undertaken.

Furthermore, increasing construction costs reduce the buying power of the limited SHOPP resources. Plotted below are both the Highway Construction Cost Index (CCI) and the Consumer Price Index (CPI). Highway construction costs and consumer prices increased at predictable, comparable and steady rates between 1980 and 2000. From 2003 to present,

construction costs escalated at rapid and unforeseen rates. Escalating construction costs reduce the buying power and further limit the ability of the SHOPP to effectively maintain and preserve the investment in the SHS.



**Figure 6 – Highway CCI and CPI**

There are several significant risks that, if realized, will inhibit the ability to implement an effective SHOPP program to preserve the transportation infrastructure with the limited funding anticipated. These include:

- Increased cost of meeting mandated activities. These mandates include the areas of stormwater management, hazardous waste mitigation and retrofitting infrastructure to meeting the ADA.
- Increased cost of emergency response. In the 2005/06 fiscal year, a total of \$408 million was allocated for emergency projects. Similarly in the 2004/05 fiscal year, \$292 million was allocated towards emergency projects. Although the SHOPP program anticipates a level of emergency projects each year, the cost impacts of the storms of the prior two years far exceeded the anticipated levels and caused the delay of planned projects.
- Increased cost to maintain new infrastructure. The increase in construction of new infrastructure as a result of voter approval of Proposition 1A, Proposition 1B, and new and extended county sales tax measures, will result in an increase in both future maintenance and SHOPP cost to maintain the additional infrastructure.

In summary, the SHS is a valuable asset to the people and economic vitality of the State of California. As the demands continue to increase and the transportation infrastructure ages, the cost to maintain and preserve this valuable asset increases. At the same time, the cost of construction has significantly increased, reducing the buying-power of the limited financial resources available for the SHOPP. The effect of these factors has lead to a reduction in the operational performance and mounting rehabilitation needs of the SHS.



## **Section 2 – Ten-Year Costs and Performance Outcomes**

### **Introduction**

The 2007 Plan identifies total capital needs of \$42 billion over the ten-year period of state FY 2008/09 through FY 2017/18. Adding in project development cost at approximately 32 percent, the total ten-year cost is \$55 billion.

**Based on the currently anticipated funding, the system condition categories of the SHOPP (Roadway Preservation, Bridge Preservation, Roadside Improvement and Facility Improvement) can be funded in aggregate at 39 percent of the identified need.**

As indicated by the level of distressed pavement, currently at 28 percent, and the projection that this level will increase, the roadway category is a critical element of this plan. To address the increasing trend in distressed pavement, the Department is developing a pavement initiative. The initiative is intended to enhance the effectiveness of the limited financing available by emphasizing preservation and will consider the additional funding opportunities provided by Proposition 1B and the potential use of GARVEE bonds for large SHOPP projects. The goal of the pavement initiative is to change the trend in distressed lane miles.

**Similarly, with the current anticipated funding, in aggregate the operational performance categories of the SHOPP (Emergency Response, Collision Reduction, Mobility Improvement and Legal and Regulatory Mandates) can be funded at 61 percent of the identified need.**

Within the Operational Performance categories, the area of Legal and Regulatory Mandates has the potential to require a larger amount of the limited financing available, specifically for stormwater management. The Department is addressing this potential by taking advantage of opportunities that exist, or will develop, to avoid costly capital intensive strategies for compliance. Opportunities include:

- Cooperative partnerships for shared stormwater facilities;
- Pollutant trading;
- Public education;
- Source control efforts.

Also within the Operational Performance area are the Mobility Improvements. Although only 30 percent of the mobility needs are projected to be funded through the constrained funding available to the SHOPP, other funding opportunities exist for these projects outside the SHOPP. Opportunities include the Corridor Mobility Improvement Account (CMIA) bond account established under Proposition 1B and the STIP. As stated in Section 13 of the adopted 2006 STIP Guidelines, these types of projects may be nominated for inclusion in the STIP if timely implementation through the SHOPP is not possible.

The following table presents a summary of the total ten-year funding needs to achieve SHOPP program goals and the Departments constrained annual SHOPP funding plan level for the 2008 FE period.



# DRAFT 2007 Ten-Year State Highway Operation and Protection Plan

Category	SHOPP Needs		SHOPP Funding for 2008 FE	
	Annual Cost (\$M)	Annual Performance Units	Annual Cost (\$M)	Annual Performance Units
Bridge Rehabilitation	\$ 321.5	130 Bridges	\$ 186.4	56 Bridges
Bridge Scour Mitigation	\$ 28	9 Bridges	\$ 24.2	8 Bridges
Bridge Rail Replacement/Upgrade	\$ 85.5	17,200 Feet	\$ 27	5,400 Feet
Bridge Seismic Restoration	\$ 141.6	62 Bridges	\$ 41.8	17 Bridges
Bridge Widening	\$ 5.7	1 Bridge	\$ 6.7	2 Bridges
Trans Permit Requirements for Bridges	\$ 28.8	10 Bridges	\$ 9.3	5 Bridges
<b>BRIDGE</b>	<b>\$ 611</b>		<b>\$ 295</b>	
Roadway Rehabilitation				
Pavement Rehabilitation	\$ 1,863.7	3,106 Lane Miles	\$ 700	2,504 Lane Miles
Long-Life Pavement Corridors				
Roadway Protective Betterment	\$ 20	TBD Locations	\$ 15	TBD Locations
Drainage System Restoration	\$ 179	1,550 Culverts	\$ 29.9	328 Culverts
Signs and Lighting Rehabilitation	\$ 10	TBD Signs	\$ 5	TBD Signs
<b>ROADWAY</b>	<b>\$ 2,073</b>		<b>\$ 750</b>	
Highway Planting Restoration	\$ 114	1,200 Acres	\$ 18.7	287 Acres
Freeway Maintenance Access	\$ 4	148 Locations	\$ 4	88 Locations
Roadside Enhancement	\$ 6	8 Locations	\$ 3	TBD Locations
Beautification and Modernization	\$ 9	12 CL Miles	\$ -	0 CL Miles
Safety Roadside Rest Area Restoration	\$ 40.2	8 Locations	\$ 21.9	5 Locations
New Safety Roadside Rest Areas	\$ 4.8	6 Partnership projects over ten years	\$ 2.4	3 Partnership projects over ten years
<b>ROADSIDE</b>	<b>\$ 178</b>		<b>\$ 50</b>	
Equipment Facilities	\$ 11	2 Facilities	\$ 4.8	1 Facility
Maintenance Facilities	\$ 50.8	22 Facilities	\$ 26.5	8 Facilities
Office Buildings	\$ 15.1	1 Facility	\$ 10	5 Facilities in 10 yr period
Materials Lab	\$ 3	1 Facility	\$ 3	1 Facility
<b>FACILITIES IMPROVEMENTS</b>	<b>\$ 80</b>		<b>\$ 44</b>	
Emergency Damage Repair	\$ 55	TBD Locations	\$ 55	TBD Locations
Permanent Restoration	\$ 55	TBD Locations	\$ 55	TBD Locations
<b>SUBTOTAL FOR SYSTEM CONDITION</b>	<b>\$ 2,942</b>		<b>\$ 1,139</b>	
<b>EMERGENCY RESPONSE</b>	<b>\$ 110</b>		<b>\$ 110</b>	
Safety Improvements	\$ 200	390 F&I Collision reduced	\$ 200	390 F&I Collision reduced
Collision Severity Reduction	\$ 100	180	\$ 100	180
Median Barrier Upgrade	\$ 17.4	8 Locations	\$ 17.4	8 Locations
<b>COLLISION REDUCTION</b>	<b>\$ 317</b>		<b>\$ 317</b>	
Relinquishments	\$ 20	22 CL Miles	\$ 12	TBD CL Miles
Noise Attenuation for Schools	\$ 1	TBD Locations	\$ -	TBD Locations
Railroad	\$ 5	5 Locations	\$ 5	TBD Locations
Hazardous Waste Mitigation	\$ 1	1 Location	\$ 1	TBD Locations
Storm Water	\$ 265	TBD Locations	\$ 125	TBD Locations
ADA Curb Ramp	\$ 4	TBD Locations	\$ 1	TBD Locations
<b>MANDATES</b>	<b>\$ 296</b>		<b>\$ 144</b>	
Operational Improvements	\$ 190	24,000 Daily Veh-Hr of Delay	\$ 35	2,700 Daily Veh-Hr of Delay
Transportation Management Systems	\$ 180	590 # of Field Elements	\$ 76.2	435 # of Field Elements
		72 Miles of Fiber		46 Miles of Fiber
Weigh Stations & WIM Facilities	\$ 28.5	1 Locations (Major Upgrade)	\$ 8.3	6 Locations
		6 Locations (Maintenance)		
<b>MOBILITY IMPROVEMENTS</b>	<b>\$ 399</b>		<b>\$ 120</b>	
<b>SUBTOTAL FOR OPERATIONAL PERFORMANCE</b>	<b>\$ 1,122</b>		<b>\$ 690</b>	
District Minor Program	\$ 100	TBD Locations	\$ 100	TBD Locations
<b>TOTAL</b>	<b>\$ 4,164</b>		<b>\$ 1,931</b>	

Figure 7 – Total Ten Year Needs and SHOPP Funding for the 2008 Fund Estimate



**Emergency Response Category**

**Program Goal:** Restore the State Highway System to its pre-existing condition following catastrophic natural damage events. This program supports the Department's stewardship goal.

Ten-Year SHOPP costs to address all identified needs: \$1.1 billion over ten-years

Ten-Year SHOPP Planned Goals and Accomplishments:

1. Open all damaged closures within 180 days of the event.
2. Provide a permanent restoration within three years of the event.

Funding level for the 2008 FE: \$110 million per year; 100 percent of the identified need.

Accomplishments with SHOPP Funding:

Fully meet goals for the five-year FE period, no change in accomplishments.



**Collision Reduction Category**

**Program Goal:** Improve motorist safety by reducing fatal and injury collisions by ten percent during the ten-year life of this Plan. This program supports the Department's safety goal.

Ten-Year SHOPP costs to address all identified needs: \$3.2 billion over ten-years

Ten-Year SHOPP Planned Goals and Accomplishments:

1. Construct safety improvements at locations with known or potential collision concentrations.
2. Widen shoulders and install guardrails to reduce the severity of collisions.
3. Install new median barrier where warranted.
4. Replace all existing non-standard median barrier by 2010.

Funding level for the 2008 FE: \$317 million per year; 100 percent of the identified need.

Accomplishment with SHOPP Funding:

Fully meet goals for the five-year FE period, no change in accomplishments.

- NOTE: All existing non-standard median barriers will be replaced within the five-year Fund Estimate period when the barrier program sunsets.



**Mandates Category**

**Program Goal:** To respond to time-sensitive projects and activities as required in statute or legal mandates. This program supports the stewardship goals.

SHOPP costs to address all identified needs: \$3.0 billion over ten-years

SHOPP Planned Goals and Accomplishments:

1. Implement the Department's statewide Storm Water Management Plan and maintain clear compliance with the National Pollution Discharge Elimination System permits.
2. Retrofit curb ramps on SHS for ADA compliance.
3. Remove all known Hazardous Waste that will not be mitigated by other actions.
4. Provide five Railroad Grade Crossing improvements per year on the SHS.
5. Provide for relinquishments of SHS segments as defined and requested in statute.

Constrained funding level for the 2008 Fund Estimate: \$144 million per year; 49 percent of the identified need.

Accomplishments with SHOPP Funding:

Fully meet goals for the five-year FE period, no change in accomplishments.

- The cost to implement a legally sufficient statewide Storm Water Management Plan and maintain clear compliance with the Department's NPDES permit may significantly increase above the constrained level identified for the 2008 FE as water quality laws, regulations and policy may change to require additional activities. The Department is addressing this potential by taking advantage of opportunities that exist, or will develop, to avoid costly capital intensive strategies for compliance. Opportunities include:
  - Cooperative partnerships for shared stormwater facilities;
  - Pollutant trading;
  - Public education;
  - Source control efforts.



### **Bridge Preservation Category**

**Program Goal:** Prevent structure failure by preserving the structural and functional integrity of all bridges owned by the State by reducing the percentage of distressed bridges to 3 percent of the bridge inventory. This program supports the safety and stewardship goals.

SHOPP costs to address all identified needs: \$6.1 billion over ten-years

#### **SHOPP Planned Goals and Accomplishments:**

1. Replace or rehabilitate 1,300 distressed and functionally deficient bridges.
2. Rehabilitate 90 bridges vulnerable to scour.
3. Reduce deficient bridge rail a total of 172,000 lineal feet.
4. Upgrade all seismically vulnerable bridges.
5. Widen ten bridges to meet Federal commitments.
6. Upgrade all 96 weak or low bridges that restrict the passage of extra-legal permit goods movement loads.

Constrained funding level for the 2008 FE: \$295 million per year; 48 percent of the identified need.

#### **Accomplishments with SHOPP Funding:**

Prevent structure failure by preserving the structural and functional integrity of all bridges owned by the state by reducing the percentage of distressed bridges to five percent of the bridge inventory.

1. Replace or rehabilitate 56 distressed and functionally deficient bridges per year.
2. Rehabilitate eight bridges vulnerable to scour per year.
3. Reduce deficient bridge rail by 26,000 lineal feet per year.
4. Upgrade 17 seismically vulnerable bridges per year.
5. Widen two bridges to meet Federal commitments per year for the first five years.
6. Upgrade five weak or low bridges that restrict the passage of extra-legal permit goods movement loads per year.

The impact of the constrained funding on the bridge preservation category of the SHOPP is that needed bridge rehabilitation and reconstruction work is delayed. Delaying needed work ultimately increases the cost of this work when undertaken in the future due to further degradation and construction cost increases.





### **Roadway Preservation Category**

**Program Goal:** Preserve the existing roadway facilities to their constructed standards by reducing the percent of distressed lanes miles to ten percent of the inventory and to replace or repair those roadway facilities as required. Achieving this goal will result in smoother pavement, reducing operating costs for motorists, and improved performance of the transportation infrastructure. The program supports the stewardship goals.

SHOPP costs to address all identified needs: \$21 billion over ten-years

SHOPP Planned Goals and Accomplishments:

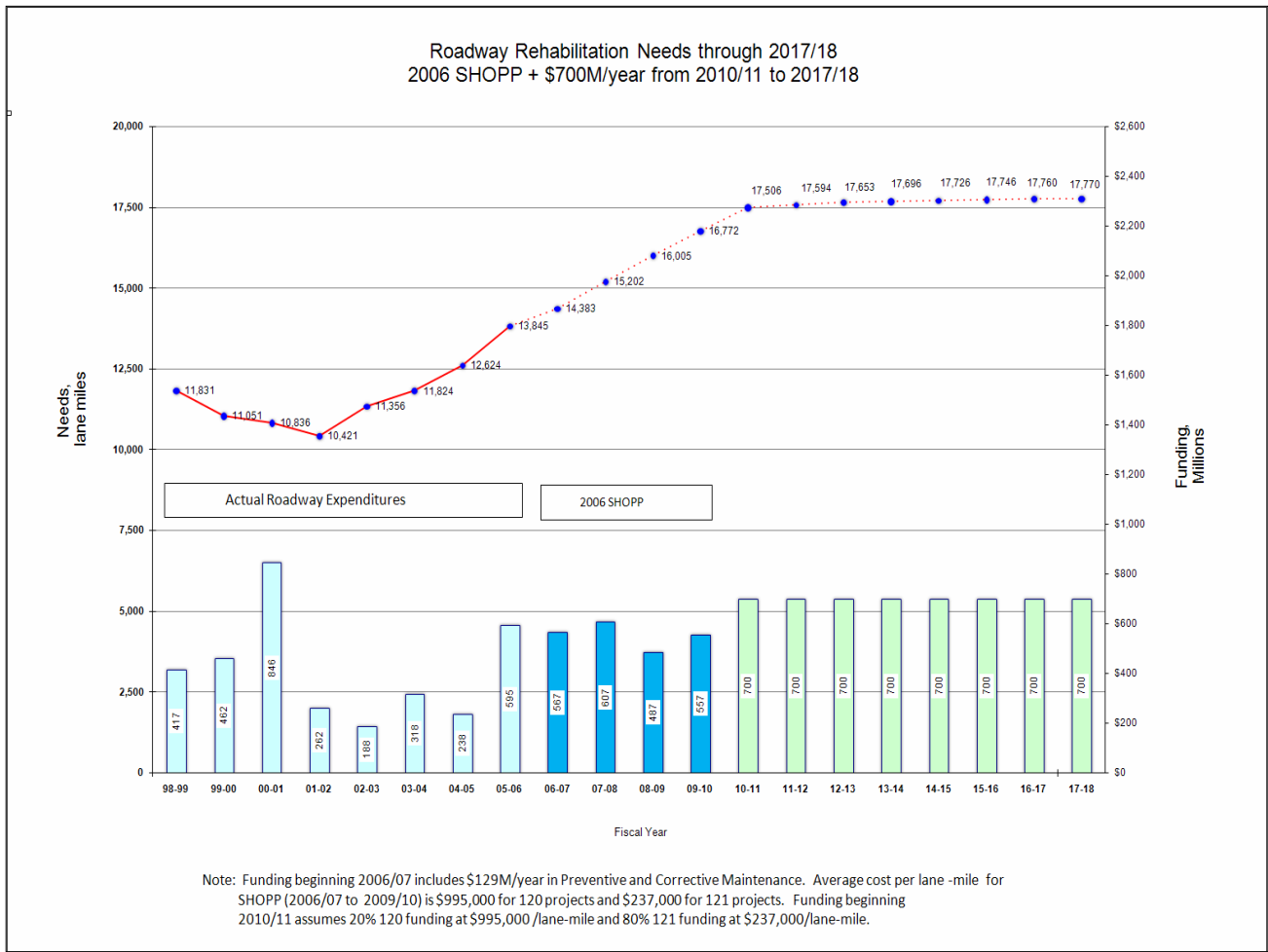
1. Reduce the current inventory of distressed and rough riding pavement from the current 13,845 lane miles (28 percent of the system) to 5,025 (ten percent of the system) at the end of the Plan period.

Constrained funding level for the 2008 FE: \$750 million per year; 36 percent of the identified need.

Accomplishments with SHOPP Funding:

1. As displayed in the figure titled, Roadway Rehabilitation Needs through the 2017/18 fiscal year, contain the distressed lane miles to 17,770 lane miles (35 percent of the system).

**The projection of distressed lane miles in the figure is a baseline founded on current and projected funding for the roadway category of the SHOPP. The trend, goals and planned accomplishment for roadway will be updated in the Spring of 2007 with the development of the Department's Pavement Initiative. The initiative is intended to enhance the effectiveness of the limited financing available by emphasizing preservation and will consider the additional funding opportunities provided by Proposition 1B and the potential use of GARVEE bonds for large SHOPP projects.**



**Figure 8 - Roadway Rehabilitation Needs Through the 2017/18 fiscal year**



### **Roadside Preservation Category**

**Program Goal:** Preserve roadside facilities to their original character, improve the safety, maintainability and compatibility of the roadside and comply with statutory mandates. Achieving this goal will assist in meeting motorists and worker safety goals, environmental mitigation promises and statutory requirements. Additionally, this category will improve coordination with community character and enhance the livability of the neighborhoods through which State highway facilities pass. This program supports the safety and stewardship goals.

SHOPP costs to address all identified needs: \$1.8 billion over ten-years

SHOPP Planned Goals and Accomplishments:

1. Replace or rehabilitate 12,000 acres of planting and irrigation system deficiencies.
2. Provide 1,500 new safe access points to minimize worker exposure to traffic.
3. Rehabilitate 76 existing safety roadside rests to meet existing laws and regulations, expand parking and provide security.
4. Construct six new safety roadside rest areas through partnerships.

Constrained funding level for the 2008 FE: \$50 million per year; 28 percent of the identified need.

Accomplishments with SHOPP Funding:

1. Annually replace or rehabilitate 287 acres of planting and irrigation system deficiencies.
2. Provide 88 new safe access points to minimize worker exposure to traffic annually.
3. Annually rehabilitate five existing safety roadside rests to meet existing laws and regulations.
4. Construct 3 new safety roadside rest areas through partnerships during the ten year period.

The impact of the constrained funding on the roadside preservation category of the SHOPP is that needed roadside preservation work is delayed. Delaying needed work ultimately increases the cost of this work when undertaken in the future due to further degradation and construction cost increases. The constrained funding also limits the ability to meet the projected future capacity needs for the Safety Roadside Rest Area element.



## **Mobility Category**

**Program Goal:** Reduce the total delay on State highways by 240,000 Daily Vehicle Hours of Delay using SHOPP eligible actions. Increase the safety and mobility of goods movement. The program supports the mobility and safety goals.

SHOPP costs to address all identified needs: \$4.0 billion over ten-years

### SHOPP Planned Goals and Accomplishments:

1. Install 5,900 field elements and 720 miles of Fiber Optics per the Transportation Management System (TMS) Master plan.
2. Improve existing truck safety inspection facilities and construct major upgrades at 11 inspection facilities and weigh stations.

Constrained funding level for the 2008 Fund Estimate: \$119 million per year; 30 percent of the identified need.

Although only 30 percent of the mobility needs are projected to be funded through the constrained funding available to the SHOPP, other funding opportunities exist for these projects outside the SHOPP. Opportunities include the CMIA bond account established under Proposition 1B and the STIP. As stated in Section 13 of the adopted 2006 STIP Guidelines, these types of projects may be nominated for inclusion in the STIP if timely implementation through the SHOPP is not possible.

### Accomplishments with SHOPP Funding:

Reduce the total delay on State highways by 2,700 Daily Vehicle Hours of Delay using SHOPP eligible actions.

1. Annually install 435 field elements and 46 miles of Fiber Optics per the TMS Master plan.
2. Improve existing or maintain 6 truck safety inspection facilities annually.



### **Transportation Facilities Category**

**Program Goal:** Maintain the Department's support facilities to standards required by various laws, regulations, efficiency requirements, and agreements. Activities have been identified which, when implemented, will result in facilities that are safe and efficient for Department employees and the general public. This program supports the stewardship and safety goals.

SHOPP costs to address all identified needs: \$0.78 billion over ten-years

SHOPP Planned Goals and Accomplishments:

1. Provide maintenance, laboratory, office and shop facilities that comply with the ADA, are energy efficient and secure.
2. Bring facilities up to functional operating standards.

Constrained funding level for the 2008 Fund Estimate: \$44 million per year; 55 percent of the identified need.

1. Upgrade one equipment facility and eight maintenance facilities per year to meet critical infrastructure deficiencies.

The impact of the constrained funding level is a lost opportunity to modernize functionally obsolete facilities to take advantage of operational efficiencies.



## **PROCESS IMPROVEMENTS**

The Department continues to define and implement process improvements to expedite the delivery and management of projects and programs. Some of these improvements have already been implemented and have yielded positive results.

- **Minor Projects Delegation** - The CTC delegated to the Department the authority to sub-allocate construction funds to projects that were identified at the beginning of the fiscal year. This delegation expedited advertising and award of construction for these projects by about 30 days per project.
- **SHOPP Cost Effectiveness Study** - As mentioned in the 2005 Plan, the Department is developing an investment analysis tool for the SHOPP. The tool allows the user to investigate alternate investment scenarios based on performance and investment levels. The Department used this tool to analyze the mobility investment for the 2007 Plan and will be using it in the development of future plans for the balance of the SHOPP program.
- **Pavement Initiative** - The Department is currently developing a pavement initiative to enhance the effectiveness of the limited financial resources available to the SHOPP. Without a change in pavement strategy, it is projected that the percentage of distressed lane miles will continue to increase. The initiative is intended to enhance the effectiveness of the limited financing available by emphasizing preservation and will consider the additional funding opportunities provided by Proposition 1B and the potential use of GARVEE bonds for large SHOPP projects.
- **Contract for Delivery** - In June 2005, the Department initiated delivery contracts to improve project delivery schedule performance for major projects planned for delivery in the 2005/06 fiscal year. These contracts significantly improved on-time project delivery performance. Due to the successful experience in the 2005/06 fiscal year, the delivery contracts are being used in the 2006/07 fiscal year.

**RELATIONSHIP TO OTHER INITIATIVES:**

**Five-Year Maintenance Plan**

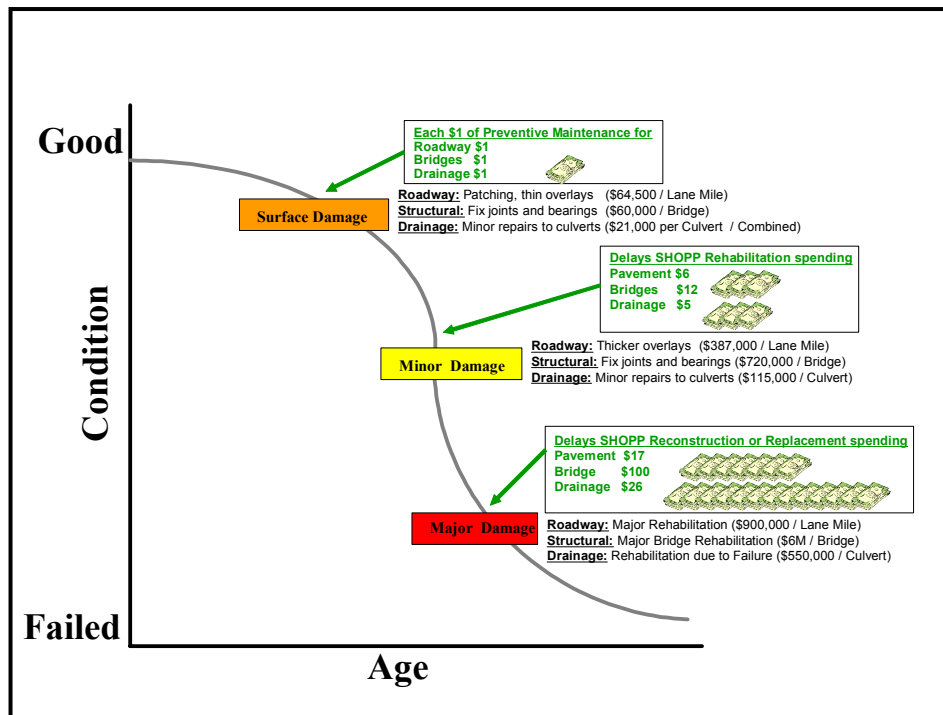
Streets and Highways Code Section 164.6 also requires the Department to prepare a five-year maintenance plan that addresses the maintenance needs of the SHS. Together, the 2007 Plan and the 2007 maintenance plan attempt to balance resources between SHOPP and maintenance activities in order to achieve identified milestones and goals at the lowest possible long-term total cost.

Preventive maintenance is the most cost effective means of protecting the state's infrastructure investment. As implemented, the five-year maintenance plan prevents the deterioration and extends the life of roadway, bridges and drainage infrastructure that is in fair or good condition. The average cost for a SHOPP roadway rehabilitation project to treat one lane-mile of minor pavement damage is \$387,000 while the average cost for preventive maintenance is \$64,500 per lane-mile. Thus, preventive maintenance results in a cost-benefit ratio of about 6:1. Similarly, the benefit ratio for structures is 12:1 (\$720,000 for minor damage rehabilitation versus \$60,000 for preventive maintenance), and 5:1 for drainage (\$115,000 for minor damage versus \$21,000 for preventive maintenance). Preventive costs are a combination of state forces and contract work.

The table illustrating the cost-benefit ratios and graphic, below, illustrates the relationship between preventive maintenance and SHOPP rehabilitation. Investing in preventive maintenance while the asset is in good to fair condition avoids future SHOPP costs for rehabilitation.

	<b>Cost of Rehabilitation</b>	<b>Cost of Preventive Maintenance</b>	<b>Unit of Measure</b>	<b>Cost- Benefit Ratio</b>
<b>Roadway</b>	\$ 387,000	\$ 64,500	Lane Mile	6:1
<b>Structural</b>	\$ 720,000	\$ 60,000	Bridge	12:1
<b>Drainage</b>	\$ 115,000	\$ 21,000	Culvert	5:1

**Figure 9 – Cost-Benefit of Preventive Maintenance**



**Figure 10 – Cost Effectiveness**

The annual baseline funding for the 2007 maintenance plan is \$286 million. This level of investment is projected to produce future SHOPP cost avoidance of approximately of \$2.4 billion; \$894 million for roadway, \$1,368 million for bridges, and \$115 million for drainage. The 2007 Plan implements this recommendation by including \$149 million of roadway projects to preserve 2,000 lane miles of pavement, \$114 million of bridge projects to preserve 521 bridges, and \$23 million of drainage projects to preserve 230 culverts<sup>1</sup>.

### **The Highway Safety, Traffic Safety, Air Quality, and Port Security Bond Act of 2006**

On November 7, 2006, the voters of the State of California passed the Highway Safety, Traffic Safety, Air Quality, and Port Security Bond Act of 2006 (Proposition 1B).

The bond act created the Highway Safety, Rehabilitation, and Preservation Account and made available \$500 million for allocation by the CTC for the purposes of the SHOPP as described in Government Code Section 14526.5. The timing and allocation of these funds will be determined concurrently with the development of the 2008 SHOPP programming document.

In coordination with the Pavement Initiative currently under development, the Department plans to focus approximately \$400 million of the Proposition 1B monies on pavement preservation and

<sup>1</sup> 2007 Five-Year Maintenance Plan, January 2007, page 14





rehabilitation projects. Financing additional pavement projects with these funds supports the reduction of distressed lane miles of pavement on the SHS.

**Grant Anticipation Revenue Vehicles (GARVEE) bonds**

A second project financing initiative currently under evaluation for the SHOPP is the use of GARVEE bonds to finance large and critical infrastructure projects. GARVEE bonds are not new money. It is a financing tool to change the timing of funding to maximize the economic benefit. This technique is advantageous when the benefits of early financing, such as reduced maintenance, reduced user-delay and reduced construction costs outweigh the costs of bond administration and debt service.

By policy and statute, the Department may bond up to 15 percent of annual federal funding. Debt service for GARVEE bonds on SHOPP projects will become a liability for the SHA.



## **Appendix A - Requirements of Government Code Section 164.6**

The 2007 Plan represents the state rehabilitation plan as required by Streets and Highways Code Section 164.6.

### **Text of Streets and Highways Code Section 164.6.**

*164.6. (a) The department shall prepare a 10-year state rehabilitation plan for the rehabilitation and reconstruction, or the combination thereof, by the State Highway Operation and Protection Program, of all state highways and bridges owned by the state. The plan shall identify all rehabilitation needs for the 10-year period beginning on July 1, 1998, and ending on June 30, 2008, and shall include a schedule of improvements to complete all needed rehabilitation during the life of the plan not later than June 30, 2008. The plan shall be updated every two years beginning in 2000. The plan shall include specific milestones and quantifiable accomplishments, such as miles of highways to be repaved and number of bridges to be retrofitted. The plan shall contain strategies to control cost and improve the efficiency of the program, and include a cost estimate for at least the first five years of the program.*

*(b) The department shall prepare a five-year maintenance plan that addresses the maintenance needs of the state highway system. The plan shall be updated every two years, concurrent with the rehabilitation plan described in subdivision (a). The maintenance plan shall include only maintenance activities that, if the activities were not performed, could result in increased State Highway Operation and Protection Program costs in the future. These activities may include roadway, structural, and drainage maintenance. The maintenance plan shall identify any existing backlog in these maintenance activities and shall recommend a strategy, specific activities, and an associated funding level to reduce or prevent any backlog during the plan's five-year period. The maintenance plan shall include specific goals and quantifiable accomplishments, such as lane-miles of highway to be repaved and the number of bridge decks to be sealed. The maintenance plan shall contain strategies to control cost and improve the efficiency of these maintenance activities, and include a cost estimate for the five years of the plan.*

*(c) The rehabilitation plan and the maintenance plan shall attempt to balance resources between State Highway Operation and Protection Program activities and maintenance activities in order to achieve identified milestones and goals at the lowest possible long-term total cost. If the maintenance plan recommends increases in maintenance spending, it shall identify projected future State Highway Operation and Protection Program costs that would be avoided by increasing maintenance spending. The department's maintenance division shall develop a budget model that allows it to achieve the requirements of this subdivision.*

*(d) The rehabilitation plan shall be submitted to the commission for review and comments not later than January 31 of each odd-numbered year, and shall be transmitted to the Governor and the Legislature not later than May 1 of each odd-numbered year. The maintenance plan shall be transmitted to the Governor, the Legislature, and the commission not later than January 31 of each odd-numbered year.*

*(e) The rehabilitation plan and the maintenance plan shall be the basis for the department's budget request and for the adoption of fund estimates pursuant to Section 163.*



## **Appendix B - Description of the Elements in Each SHOPP Category**

### **EMERGENCY RESPONSE CATEGORY:**

Emergency response has two elements – Emergency Opening and Permanent Restoration.

**Major Damage – Emergency Opening** - The primary purpose of this element is to re-open facilities damaged or imminently threatened by natural disasters, catastrophes or events such as storms, floods, fires, earthquakes, tsunamis (tidal waves), or volcanic action. Responses to man-made disasters such as large scale civil unrest, explosions, and acts of war or terrorism are also included.

Typical activities are:

- Emergency road openings to temporary or permanent levels of traffic;
- Debris removal and demolition;
- Construction or operation of detours;
- Earthwork, blasting, or replacement of rock to protect facilities from additional damage or to remove an imminent threat, and
- Drainage facilities needed to forestall immediate threat of additional washout or erosion replacement of traffic safety devices (such as guardrail, signals, etc.) when lost due to catastrophic damage.

It is expected that emergency opening projects restore the roadway to service within 180 days of the damage incident.

Typically, emergency opening projects are allocated under CTC Resolution G-11, authorizing the Department to allocate funds for emergency projects.

**Major Damage – Permanent Restoration** - The primary purpose of this element is to restore facilities to their pre-damage condition after the emergency opening phase is complete. To be considered as permanent restoration, the project must be tied to an identifiable event. The typical scope for such projects may include:

- Final grading and earthwork;
- Full restoration of roadway and all appurtenances to pre-damage condition;
- Construction of permanent geotechnical, structural and drainage fixtures, and
- New alignments when the existing damaged alignment is no longer feasible.

It is expected permanent restoration projects achieve construction completion within three years of the damage incident.



## **COLLISION REDUCTION CATEGORY:**

Collision reduction has three elements – Safety Improvements, Collision Severity Reduction, and Median Barrier Upgrade.

**Safety Improvements** - The primary purpose of this element is to reduce the number or severity of collisions on the existing SHS. Project identification is based on the calculation of a Safety Index (SI).

Projects may be spot locations where collision history indicates a pattern susceptible to correction by a safety improvement such as, but not limited to:

- Traffic signals (school zone signals included);
- Wet pavement corrections;
- Curve corrections;
- Shoulder widening, and
- Left turn channelization.

The element also includes projects that meet the warrant for study program criteria and, following an engineering analysis, have been determined to improve safety by the installation of median barrier, soft barrier, or other safety improvement to address cross median or crossover type collisions.

**Collision Severity Reduction** - The primary purpose of this element is to upgrade existing highway safety features within the clear recovery area of the roadbed that will lead to reduced collisions and/or severity of collisions. Projects will include:

- Installation of new guardrail end treatments and crash cushions;
- Install rumble strips, glare screen, rock fall mitigation, over crossing pedestrian fencing, and
- Clean up the Roadside Environment (CURE) projects. (CURE project goals are to remove, relocate, make breakaway, or shield objects within the clear recovery area.)

The intent of this program is to be proactive in enhancing the safety of the SHS. As such, this program will not be subject to an SI analysis, but rather will define numeric quantities that will be achieved for each of the categories of situations. Projects will be prioritized based on the projected collision severity reduction benefits.

**Upgrade Median Barriers** - The primary purpose of this element is to upgrade existing cable and double metal beam barriers with concrete or thrie beam median barriers in an effort to meet current standards for median barrier and to increase worker safety by minimizing their exposure to maintenance activities for these types of median barrier. This element is intended for all freeways that have existing cable or double metal beam barrier in the median.



### **LEGAL AND REGULATORY MANDATES CATEGORY:**

This category has five elements – Relinquishments, Railroad/Highway At-Grade Crossings, Hazardous Waste Mitigation, Storm Water Mitigation and Americans with ADA Curb Ramps.

**Relinquishments** - The primary purpose of this element is to provide funding for Legislative relinquishments of state highways to local agencies that are considered to be "in the best interest of the State."

**Railroad/Highway At-Grade Crossing** - The primary purpose of this element is to reduce the number and severity of highway accidents by eliminating hazards to vehicles and pedestrians at existing railroad crossings.

The program is authorized by Title 23, United States Code Section 130 (23 U.S.C.). The Section 130 program is a cooperative effort between the Federal Highway Administration (FHWA), the Department, the California Public Utilities Commission (CPUC), railroad companies and local agencies. All projects must be authorized by the CPUC pursuant to Section 1201 through 1220 of the Public Utilities Code.

**Hazardous Waste Mitigation** - The primary purpose of this element is to clean up hazardous waste contamination on a State highway and other department-owned property when the site is not part of a programmed STIP, SHOPP, or Minor Project.

**Storm Water Mitigation** - The primary purpose of this element is to ensure that the Department's stormwater discharges to the waters of the state meet applicable water quality standards. The purpose of this program element is to construct stormwater mitigation projects that arise from judicial and regulatory orders; or improvements that comply with the Department's NPDES permits.

**ADA Curb Ramps** - The primary purpose of this program element is to construct curb ramps at existing cross walks, and other defined pedestrian pathways, to make the path of travel accessible. It should be noted that the Department's actions to upgrade facilities consistent with ADA requirements is not limited to this funding category. Compliance with ADA is incorporated into the Department's design standards.

### **BRIDGE PRESERVATION CATEGORY:**

This category has six elements, (1) Bridge Rehabilitation, (2) Bridge Scour Mitigation, (3) Bridge Rail Replacement and Upgrade, (4) Bridge Seismic Restoration, (5) Bridge Widening and, (6) Transportation Permit Requirements for Bridges.

**Bridge Rehabilitation** - The primary purpose of this element is to restore or replace structures when, due to deterioration or other causes, they become inadequate. Emphasis is placed on structures classified as structurally deficient and/or functionally obsolete.



Included is work to meet standards as required under ADA and Cal-OSHA, and work required to restore or replace appurtenances attached to structures for use in maintenance, such as inspection walkways, movable scaffolds, and air and water service lines.

Major transportation structures include bridges, tunnels, tubes, drainage pumping plants, marine fenders, ferryboats, and the mechanical and electrical machinery associated therewith.

It is recognized that when bridges are replaced or rehabilitated it is sometimes appropriate to make some geometric and structural improvements. Therefore, approved improvements may be considered as part of a restoration or replacement project, but the original need for the project must have been to restore or replace structures.

**Bridge Scour Mitigation** - The primary purpose of this element is to rehabilitate or replace bridges that are vulnerable to collapse from erosion of channel or stream beds beneath bridge foundations.

This program may also include any monitoring projects that are necessary to collect data that will show when the bridge becomes scour critical and requires further action.

**Bridge Rail Replacement and Upgrade** - The primary purpose of this element is to bring all non-crashworthy bridge rails up to current federal standards. The program will identify the number and locations of non-crashworthy rails and develop an implementation plan to bring these rails to the current standards.

**Bridge Seismic Restoration** - The primary purpose of this element is to repair seismic deficiencies of existing bridges for those bridges not identified in the Seismic Retrofit Phase I Program or for bridges where site conditions have changed since the retrofit program.

**Bridge Widening** - The primary purpose of this element is to perform bridge widening that was deferred from other projects as part of a commitment to FHWA to receive funding for the original project.

**Transportation Permit Requirements for Bridges** - The primary purpose of this element is to upgrade low and weak bridges to allow safe and efficient movement of oversized/overweight vehicles and loads on major State highways.

### **ROADWAY PRESERVATION CATEGORY:**

The goal of the roadway preservation category is to reduce the percentage of distressed lane-miles. The roadway preservation category has six elements – Roadway Rehabilitation, Pavement Rehabilitation, Long-Life Pavement Rehabilitation, Roadway Protective Betterments, Drainage System Restoration, and Signs and Lighting Rehabilitation.

The historic goal of the Department has been to reduce the number of distressed lane-miles of pavement to 5,500, or approximately ten percent of the total system. Due to funding constraints, the Department is reevaluating this goal.



**Roadway Rehabilitation** - The primary purpose of this element is to rehabilitate roadways that ride rougher than established maximums and/or exhibit substantial structural problems. Work incidental to pavement rehabilitation or replacement of other highway appurtenances which are failing, worn out or functionally obsolete, such as drainage facilities, retaining walls, lighting, signal controllers, and fencing, may be included.

A roadway or appurtenance that is rehabilitated under this task should normally provide ten years or more of service life with relatively low maintenance expenditures. Rehabilitation, with its provision of extending the service life of the facility, is distinct from maintenance, which simply repairs or preserves the facility in a safe and usable condition.

Roadway Rehabilitation projects must qualify for rehabilitation on the basis of existing Pavement Management System (PMS) criteria.

**Pavement Rehabilitation** - The primary purpose of this element is to provide corrective maintenance for pavement under the Capital Preventive Maintenance (CAPM) guidelines. This task may be used to correct pavement distress as an intermediate fix until the full roadway rehabilitation project may be delivered. The expected life of a CAPM project is five to seven years.

Pavement Rehabilitation projects must qualify on the basis of existing PMS guidelines. Traffic safety and other operational improvements will not be added to pavement preservation work. Other work (geometric corrections, widening, etc.) is typically not added to a Pavement Rehabilitation project.

**Long-Life Pavement Rehabilitation** - The primary purpose of this element is to implement Long-Life Pavement Rehabilitation corridors on roadways where the average daily traffic is greater than 150,000 vehicles and 50,000 average daily truck traffic.

Long-Life Pavement Rehabilitation has its provision of extending the service life of the pavement to at least twice the normal rehabilitation project and will upgrade the existing corridor to current federal standards. Other roadway improvements, such as signing and lighting upgrades, traffic safety and operational improvements may be added to this work if justified by accident statistics or are required by federal standards to qualify the project for federal funding. The expected life of a long-life pavement project is 20 to 40 years.

**Roadway Protective Betterments** - The primary purpose of this element is to protect facilities from anticipated future catastrophic damage from natural events (storms, floods, landslides, etc.) or human-caused events.

Examples of protective betterments include:

- Rock slope protection;
- Rock fall prevention (rock nets, etc.);





- Stabilization trenches;
- Slope corrections;
- Pumps, pumping stations at depressed sections;
- Retaining walls, soil nailing, and
- Security improvements (capital improvements only).

**Drainage System Restoration** - The primary purpose of this element is to provide for the replacement or in-place rehabilitation of culverts and highway drainage systems which have lost serviceability due to age, wear or degradation. Upgrades or modifications of culverts and highway drainage systems to increase flow or improve drainage alignment are included. Projects to abandon culverts are also included.

**Signs and Lighting Rehabilitation** - The primary purpose of this element is to rehabilitate and upgrade signs and lighting facilities.

### **MOBILITY IMPROVEMENT CATEGORY:**

The mobility improvement category has three elements – Operational Improvements, Transportation Management Systems Weigh Stations, and Weigh-in-Motion Facilities.

**Operational Improvements** - The primary purpose of this program element is to improve traffic flow on existing state highways by reducing congestion and operational deficiencies at spot locations. As stated in Section 13 of the adopted 2006 STIP Guidelines, state highway operational improvements that do not expand the design capacity of the system and are intended to address spot congestion are eligible for SHOPP. Regions may nominate these types of projects in their RTIP if timely implementation through the SHOPP is not possible.

Operational improvement projects do not expand the design capacity of the system. Examples of Operational Improvement projects include, but are not limited to:

- Interchange modifications (but not to accommodate traffic volumes that are significantly larger than the existing facilities were designed for);
- Ramp modifications (acceleration - deceleration/weaving);
- Auxiliary lanes for merging or weaving between adjacent interchanges;
- Curve corrections/improve alignment;
- Signals and/or intersection improvements;
- Two-way left-turn lanes;
- Channelization;
- Turnouts, and
- Shoulder widening.

**Transportation Management Systems** - The primary purpose of this element is to improve traffic flow on existing state highways by addressing system-wide non-recurrent congestion through system management techniques.





Transportation Management Systems facilitate the real time management of the SHS by providing accident and incident detection, verification, response, and clearance. These systems provide SHS status information to travelers.

Examples of Transportation Management System projects include, but are not limited to:

- Traffic sensors;
- Changeable message signs;
- Close circuit television cameras;
- Ramp meters;
- Communications systems;
- Highway advisory radio;
- Traffic signal interconnect projects, and
- Transportation Management Centers (TMCs), including the necessary computer software and hardware

**Weigh Stations & Weigh-in-Motion Facilities** - The primary purpose of this element is to provide for Commercial Vehicle Enforcement Facilities (commonly called weigh stations) and Weigh-in-Motion (WIM) systems.

The weigh stations are needed to support the Commercial Vehicle Enforcement Plan. Truck safety, size and weight regulations are enforced by the California Highway Patrol, reducing truck related accidents or incidents, and protecting our highways from premature damage.

The WIM sites provide data for federally required data systems and special studies, design and maintenance strategies, size and weight policies, enforcement and planning strategies, and the traffic and truck volumes publications.

### **ROADSIDE IMPROVEMENT CATEGORY:**

The roadside improvement category has six elements, (1) Highway Planting Restoration, (2) Freeway Maintenance Access, (3) Roadside Enhancement, (4) Beautification and Modernization, (5) Safety Roadside Rest Area Restoration, and (6) New Safety Roadside Rest Areas.

**Highway Planting Restoration** - The primary purpose of this element is to provide for replacement planting restoration and to rehabilitate existing highway plantings to an economically maintainable state following damage by weather, natural violence or deterioration.

Highway planting restoration projects also provide for erosion control to comply with National Pollution Discharge Elimination System permit requirements, provide design for safety features for maintenance workers, improve roadside appearance, and coordination with community character.



**Freeway Maintenance Access** - The primary purpose of this element is to provide improved off pavement access to work sites to minimize the exposure of highway workers to traffic.

**Roadside Enhancement** - The primary purpose of this program element is to provide for:

- Fish and wildlife preservation and protection;
- Historical markers;
- Information systems such as logo signs;
- Eliminate qualifying junkyards;
- Removal of nonconforming outdoor advertising signs;
- Roadside ecological viewing areas;
- Scenic enhancements;
- Compliance with Surface Mining and Reclamation Act of 1975 requirements;
- Vista points, and
- Relinquishment of environmental mitigation sites.

**Safety Roadside Rest Area Restoration** - The primary purpose of this element is to correct deficiencies and restore existing roadside rest areas to a safe and healthful condition, and is intended to:

- Improve operations;
- Expand capacity (parking and-comfort stations);
- Rehabilitate or replace existing comfort stations or other architectural elements to meet ADA and Cal-OSHA requirements;
- Add maintenance facilities and office space for California Highway Patrol;
- Upgrade sewage systems , water supply, or electrical systems to meet health and safety codes, and
- Upgrade ramps to new design standards or relocate existing rest areas to another location or construct auxiliary facilities where expansion and upgrading at an existing site is not feasible are included.

**New Safety Roadside Rest Areas** - The primary purpose of this element is to provide for new, conveniently spaced safety roadside rest areas, as an integral part of the SHS, where the traveler may stop, rest, relax, obtain travel information, and return to the highway more alert and safe.

Partnerships and joint development of rest areas with the private sector or public agencies are included.

All land, structures, landscaping, utilities and other facilities; e.g., restrooms, office and storage space, tables, drinking fountains, telephones, motorist information, trash receptacles, trailer sanitary stations, are included.



**FACILITY IMPROVEMENT CATEGORY:**

The goal of the facility improvement category is to address worker safety, ADA and Cal-OSHA requirements, and to improve operational efficiency. The facility improvement category has four elements; (1) Equipment Facilities, (2) Maintenance Facilities, (3) Office Buildings, and (4) Materials Laboratories.